**Responses to USEPA Initial Comments – VPBs 148-153**

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| 1. It looks like the Navy's six data points for this work plan include three points within the western plume to further define the extent of contamination plus three points which would serve as sentinel wells for South Farmingdale Water District #6. Please confirm the goals and data quality objectives for these VPBs. We also would be interested in discussing with the Navy its rationale for selecting the specific points. | Response:<br><br>The following provides the goals and rationale for these locations: *VPBs 151-153:* The objectives of these are to delineate the plume at 500-700 ft bgs (equivalent to the impacted sandy interval in American Water New York [ANY; AQUA] wells) and 700-800 ft bgs (in a deep gravel zone immediately above the Raritan that may be underflowing ANY and SFWD-3, and potentially SFWD-6).<br><br>*VPBs 148-150:* The objectives of these are to identify the southern boundary of the elevated concentrations recently found at VPB 139 and better delineation of the plume in sand intervals at 500-700 ft and gravel intervals at 700-800 ft. |
| 2. We noticed a number of elevated data points in the Regional Comprehensive Groundwater Sampling Report, some of which exceeded 1000 ppb TVOCs. As most of these points were not surrounded with other data from this sampling event, it would be helpful to understand how existing data from previous sampling events will be used to determine whether the extent of contamination in these areas has been defined or whether data gaps exist. These points include:<br><br>MW-53D2 (1100 ppb) - This well is at the northwest, just beyond the Grumman property. What is the source of this contamination? The highest TVOCs observed prior to comprehensive round was in 6/2002 at a concentration of 350 ppb. Is there an explanation for this increase in concentration? | Response:<br><br>This data was collected by Northrup Grumman as part of the Comprehensive Groundwater sampling in June 2013, the goal of which was to provide a snapshot of current conditions. This data is being evaluated to ascertain the presence of data gaps and the activities and schedule for a path forward. In addition, groundwater in this area is not addressed by this work plan. VPBs have been installed east and west of the GM-34D and GM34D2 area, as well as to the south to delineate the extent of contamination in this area. |

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| What data exists in this area to define the extent of this contamination?<br><br>a. MW- 100-3 (1100 ppb); 109-3 (1000 ppb); and 111-4 (4100 ppb); MW-116-5 (2200 ppb) - These are easternmost data points on the plume. Please explain the data that exists to define the eastern extent of this contamination? If this is part of the OU-3 plume for which further delineation is specified via the ROD for OU-3, what is the schedule for further investigation and remediation?<br><br>b. GM-34 D and GM-34D2 (360 ppb and 200 ppb) – These data-points also stand alone. Please explain whether data exists to further define the extent of this contamination? | |
| 3. TT101-D2 (480 ppb) - This data point stands alone in the center of the map. What additional data exists to define the extent of contamination in this area? | Response:<br><br>VPBs have been installed north, west and south of this area. Further delineation is one of the goals of VPBs 148, 149, and 150, which are located downgradient of TT101D2. Groundwater to the east of this location will be addressed by a future work plan |
| 4. We recognize that the Bethpage Water District Wells and the GM-38 recovery system capture a considerable amount of contamination and consequently prevent it from migrating further downgradient. N-8941 revealed a TVOC concentration of 1,100 ppb. Please explain the data that exists to the south of N-8941 that could be used to define the extent of contamination in this area. | Response:<br><br>This area is currently being investigated; VPB 139 was recently installed south of N-8941, and VPBs 148-150 are being installed downgradient of VPB 139. |

**Responses to USEPA Initial Comments – VPBs 145-147**

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| 1. Please provide the rationale that was used in selecting the locations for the three VPB and; | Response:<br><br>The goals of these VPBs are to obtain data to support installation of outpost wells for Massapequa Water District wells 6442 and 6443, and to delineate contamination that may be present in the deeper (700-800 ft) gravel zone near the top of the Raritan. The locations were selected based on providing sufficient upgradient coverage to these wells from the NW, N, and NE directions. |
| 2. The work plan states: "At each location, a VPB will be completed followed by installation of two monitoring wells targeting different depths. If conditions warrant, a third monitoring well may be installed." Please explain the criteria that will be used to determine the selection of the screen depth and the factors that will be considered when determining whether the third monitoring well would be installed. In particular, if the groundwater sampling data collected during VPB installation reveals nondetect concentrations, how will the screen depths for the permanent monitoring wells be determined. | Response:<br><br>Since these groundwater wells will be used as sentry wells for the downgradient Public Water Supply (PWS) wells, the screen intervals will be selected to match those of the PWS wells. Location specific lithology as determined by the field observations and gamma logs will be used to modify and finalize the screen intervals. VOC concentrations will also be considered in evaluated the screen intervals especially when detected at depth (>500 ft) since VOCs could potentially impacts the PWS due to the unique hydrogeology. If it appears that a third well is needed after evaluation of these criteria, then a third well will be installed. If all concentrations are non-detect, at least two wells will be installed at each location at intervals consistent with the screen intervals of wells 6442 and 6443, which have screen intervals of 524-612 ft and 770-850 ft, respectively. |
| 3. Will the Agencies have an opportunity to review the VPB groundwater data and the proposed screen depths prior to the construction of the permanent monitoring wells? | Response:<br><br>From the receipt of the gamma log to the start of the drilling of the first monitoring wells is approximately three days. Any delay would result in substantial standby costs. The selected well screens, gamma |

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| | logs, and analytical data can be provided to the EPA for information as they become available. |

Attachment A

**January 2, 2014. USEPA Region 2**

**To: Steve Scharf**

**From: Carol Stein**

Re: Navy- Northrop Grumman/ Bethpage – preliminary comments for discussion of VPBs 148 - 153, and VPBs 145 -147

EPA has had the chance to take a preliminary look at the Regional Comprehensive Groundwater Sampling Report which Northrop-Grumman released on November 15, 2013, and to compare it with the draft work plan which the Navy submitted in early December 2013 for the Abbreviated Work Plan for Vertical Profile Borings (VPBs) 148 through 153 in the western groundwater plume (also known as the VPB 126-128 Area). As you and I had discussed on Wed, December 18th, EPA would be interested in asking a few questions before completing our review of this work plan. This would help us to (1) ensure that we understand the rationale for the Navy's choosing its proposed 6 sampling points VPB-148 through VPB-153 , and (2) to ensure that we understand the Navy's and/or Northrop-Grumman's overall plans for future sampling of the plume. We believe that it would be most efficient if these questions can please be discussed at a working conference call or meeting among EPA, NYSDEC, Navy, and Northrop-Grumman. As per your request, we are submitting these initial questions in writing to prepare you for our upcoming discussion. As per your e-mail, also of December 18, 2013, EPA has been given an extension so that we can provide our formal comments on the VPB 126-128 work plan by January 21, 2014. Our initial questions, for discussion, are as follows:

1.) It looks like the Navy's six data points for this work plan include three points within the western plume to further define the extent of contamination plus three points which would serve as sentinel wells for South Farmingdale Water District #6. Please confirm the goals and data quality objectives for these VPBs. We also would be interested in discussing with the Navy its rationale for selecting the specific points.

2.) We noticed a number of elevated data points in the Regional Comprehensive Groundwater Sampling Report, some of which exceeded 1000 ppb TVOCs. As most of these points were not surrounded with other data from this sampling event, it would be helpful to understand how existing data from previous sampling events will be used to determine whether the extent of contamination in these areas has been defined or whether data gaps exist. These points include:

MW-53D2 (1100 ppb) - This well is at the northwest, just beyond the Grumman property. What is the source of this contamination? The highest TVOCs observed prior to comprehensive round was in 6/2002 at a concentration of 350 ppb. Is there an explanation for this increase in concentration? What data exists in this area to define the extent of this contamination?

c. MW- 100-3 (1100 ppb); 109-3 (1000 ppb); and 111-4 (4100 ppb); MW-116-5 (2200 ppb) - These are easternmost data points on the plume. Please explain the data that exists to define the eastern extent of this contamination? If this is part of the OU-3 plume for which further delineation is specified via the ROD for OU-3, what is the schedule for further investigation and remediation?

d. GM-34 D and GM-34D2 (360 ppb and 200 ppb) – These data-points also stand alone. Please explain whether data exists to further define the extent of this contamination?

3.) TT101-D2 (480 ppb) - This data point stands alone in the center of the map. What additional data exists to define the extent of contamination in this area.

4.) We recognize that the Bethpage Water District Wells and the GM-38 recovery system capture a considerable amount of contamination and consequently prevent it from migrating further downgradient. N-8941 revealed a TVOC concentration of 1,100 ppb. Please explain the data that exists to the south of N-8941 that could be used to define the extent of contamination in this area.

We also have a few preliminary questions on the *Abbreviated Work Plan (December 2013) for Vertical Profile Borings (VPB-145, VPB-146, and VPB-147) Pre-Design Field Investigation, Operable Unit 2 Groundwater:*

1. please provide the rationale that was used in selecting the locations for the three VPB and;

2. The work plan states: "At each location, a VPB will be completed followed by installation of two monitoring wells targeting different depths. If conditions warrant, a third monitoring well may be installed." Please explain the criteria that will be used to determine the selection of the screen depth and the factors that will be considered when determining whether the third monitoring well would be installed. In particular, if the

groundwater sampling data collected during VPB installation reveals nondetect concentrations, how will the screen depths for the permanent monitoring wells be determined.

3. Will the Agencies have an opportunity to review the VPB groundwater data and the proposed screen depths prior to the construction of the permanent monitoring wells?

At your convenience, please let us know when NYSDEC, the Navy, and Northrop-Grumman would be available to speak with EPA. I can be reached at (212) 637-4181, or via e-mail at stein.carol@epa.gov.

Thanks,

Carol Stein

212-637-4181